Volunteer Lake Assessment Program Individual Lake Reports
HOUSTON POND, CHESTER, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	1,453	Max. Depth (m):	2.6	Flushing Rate (yr¹)	32.5
Surface Area (Ac.):	20	Mean Depth (m):	1.2	P Retention Coef:	0.4
Shore Length (m):	2,100	Volume (m³):	94,000	Elevation (ft):	390

TROPHIC CLASSIFICATION

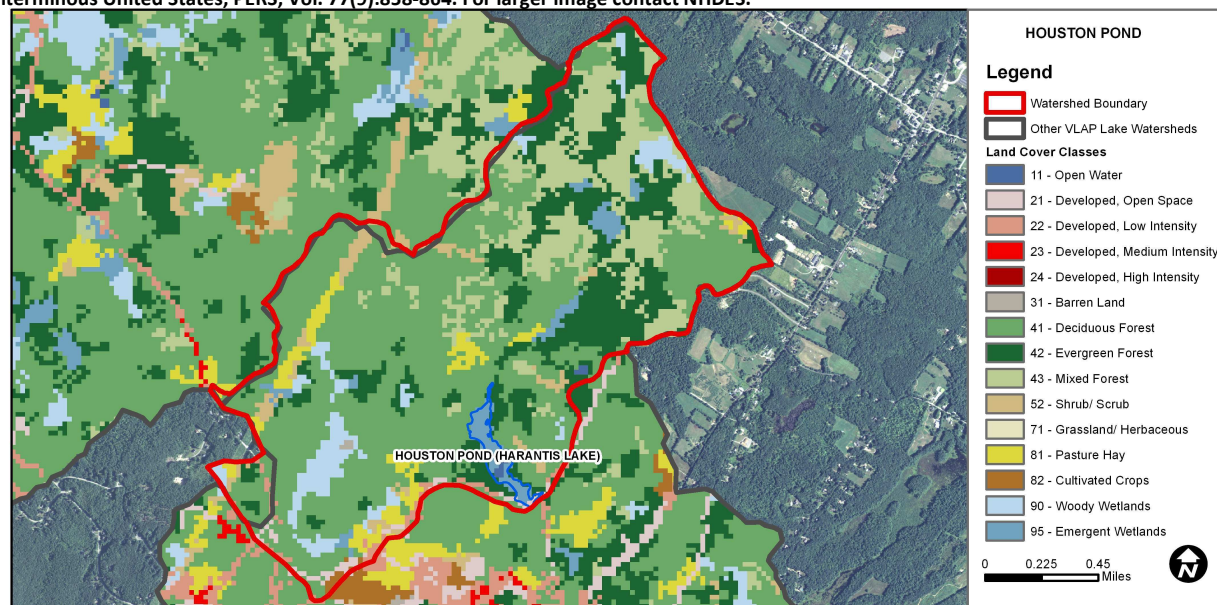| Year	Trophic class
2000	EUTROPHIC

KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	No Data	No Data for this parameter.
	Chlorophyll-a	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.

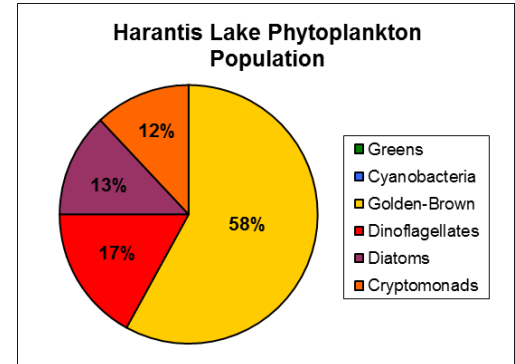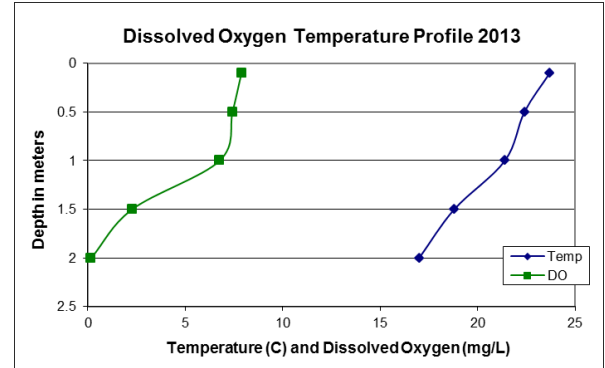| Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	0.18	Barren Land	0.08	Grassland/Herbaceous	0
Developed-Open Space	0.91	Deciduous Forest	49.2	Pasture Hay	3.56
Developed-Low Intensity	1.08	Evergreen Forest	18.9	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	15.68	Woody Wetlands	4.74
Developed-High Intensity	0	Shrub-Scrub	2.57	Emergent Wetlands	2.92

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphics*)

🌢 **CHLOROPHYLL-A:** Chlorophyll levels were elevated and indicative of an algal bloom. Visual analysis of historical data indicates highly variable chlorophyll between years.

🌢 **CONDUCTIVITY/CHLORIDE:** Epilimnetic and tributary conductivity were less than or approximately equal to the state median except for North Cove, which was elevated. Visual analysis of historical data indicates epilimnetic conductivity is moderately variable.

🌢 **TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels were average for the pond. Visual inspection of historical data indicates relatively stable epilimnetic phosphorus with the exception of 2010. Tributary phosphorus levels were average, except for North Cove which was slightly elevated; however North Cove typically experiences higher phosphorus levels.

🌢 **TRANSPARENCY:** Pond transparency was slightly lower than 2012 likely due to the increased algal growth. Visual inspection of the historical data indicates stable transparency since monitoring began.

🌢 **TURBIDITY:** Epilimnetic and tributary turbidities were average for the pond which is a positive sign since samples were collected following over an inch of rainfall.

🌢 **pH:** Epilimnetic and tributary pH levels were lower than desirable range 6.5 – 8.0 units. Visual inspection of historical data indicates slightly variable epilimnetic pH since monitoring began.

🌢 **RECOMMENDED ACTIONS:** Water quality in North Inlet is worse than the rest of the pond. Try to identify potential sources of the elevated conductivity and phosphorus. Add chloride sampling to North Inlet to rule out unnatural contributions to the elevated conductivity. Increase monitoring frequency to better assess summer water quality and decrease variability in trend detection.

Dissolved Oxygen Temperature Profile 2013

Harantis Lake Phytoplankton Population

- Greens
- Cyanobacteria
- Golden-Brown
- Dinoflagellates
- Diatoms
- Cryptomonads

58% / 17% / 13% / 12%

Station Name	Alk. mg/l	Chlor-a ug/l	Cond. uS/cm	Total P ug/l	Trans. m NVS	Trans. m VS	Turb. ntu	pH
Beaver Inlet			32.5	19			0.89	5.83
Dam Outlet			42.2	17			1.06	6.16
Epilimnion	3.20	11.7	48.6	16	1.25	1.68	1.12	5.75
Gag Inlet			19.4	16			0.52	6.08
North Cove			95.9	25			1.52	

Table 1. 2013 Average Water Quality Data for HARANTIS LAKE

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
pH	N/A	Ten consecutive years of data necessary.	Chlorophyll-a	N/A	Ten consecutive years of data necessary.
Conductivity	N/A	Ten consecutive years of data necessary.	Transparency	N/A	Ten consecutive years of data necessary.
			Phosphorus (epilimnion)	N/A	Ten consecutive years of data necessary.

Historical Trend Epilimnetic Conductivity and pH

Historical Deep Spot Chlorophyll-a, Epilimnetic Total Phosphorus & Transparency Data